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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/550,225	08/02/2006	Mirza Najam Ali Beg	UDL30.001APC	7800

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EXAMINER	
BOBISH, CHRISTOPHER S	

ART UNIT	PAPER NUMBER
3746	

NOTIFICATION DATE	DELIVERY MODE
04/12/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/550,225	BEG ET AL.	
	Examiner	Art Unit	
	CHRISTOPHER BOBISH	3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 February 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,5,6,9,18-27,29 and 38-44* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 2, 5, 6, 9, 18-27, 29 and 38-44* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

This rejection is in response to the papers filed by the applicant on 02/23/2010.

Claims 1, 2, 5, 6, 9, 18-27, 29 and 38-44 are pending and have been addressed below.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-2, 5-6, 9, 18-27, 29 and 38-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sarshar (WO 95074414) in view of Wiltshire et al (GB 2 239 676) in view of Cholet et al (US Patent No. 4,718,824) in view of Palmour (US Patent No. 3,782,463).

Sarshar teaches:

limitations from claims 1 and 23, a system for pumping multiphase fluids, the system comprising:

a cyclone type, **Page 2 Lines 23-33 teach a separator that functions as a cyclone separator**, phase separator, **FIG. 3 (41, 42) Page 4 Line 12,** that is

connected to receive an LP multiphase fluid, and is constructed and arranged to separate an LP gas phase and a LP liquid phase from the LP multiphase fluid, **Page 4 Lines 11-27**;

a gas-gas jet pump, **FIG. 3 (32) Page 4 Lines 19-20,** having an LP inlet connected to receive the LP gas phase, **FIG. 3 (42G) Page 4 Lines 21-22,** an HP inlet connected to receive a HP gas supply, **FIG. 3 (41G) Page 4 Lines 20-21,** and an outlet for providing outlet gas, **FIG. 3 (43G) Page 4 Line 24,** at a pressure higher than that of the LP gas phase;

Sarshar does not teach a compressor providing a HP source; instead Sarshar teaches using pressure directly from a well.

However, Wiltshire does teach that compressors can be used to provide motive fluid pressure in jet pumps.

Wiltshire teaches:

limitations from claims 1 and 23, a compressor, **FIG. 2 (16),** providing an HP gas source to a jet pump, **FIG. 2 (17) Page 2 Lines 14-21**;

Examiner acknowledges that the jet pump taught by Wiltshire is a liquid-gas jet pump, however it would have been obvious to one of ordinary skill in the art of pumps at the time of the invention that the method of using a compressor to provide a HP gas source in a jet pump, as taught by Wiltshire, could be combined with a gas-gas jet pump (as is taught in Sarshar) as well, to provide a reliable motive force.

wherein the compressor is arranged to provide a gas source having a pressure in the range 50-150 bar;

Sarshar discloses the pumping system of claim 1 except for the range of range of pressure of the gas source. It would have been obvious to one having ordinary skill in the art of pumping systems (particularly jet pumps and wells) at the time of the invention to choose a value of pressure provided by the compressor that is sufficient to operate the jet pump at a desired power/flow, including one from within this range, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. ***In re Aller, 105 USPQ 233.***

Neither Sarshar nor Wiltshire teaches using a high pressure steam as a motive fluid, but Woerheide does.

Woerheide teaches:

limitations from claim 1 and 23, wherein a jet pump used in a well system is supplied with high pressure steam from a generator in order to move a well vapor **(C. 2 Lines 3-7 and 52-53; C. 3 Lines 20-40 and 61-67);**

It would have been obvious to one having ordinary skill in the art of pumping systems (particularly jet pumps and wells) at the time of the invention to use a readily available motive fluid source such as steam as taught by Woerheide to power the jet pump of Sarshar, as steam is a reliable and available source in well operations.

Sarshar does not teach a knockout tank, but Palmour does.

Palmour teaches:

limitations from claims 1 and 23, a knockout tank, **(28),** for removing a liquid from a gas, having a liquid outlet connected to deliver removed liquid to a liquid pump, **(80);** the knock out tank being arranged in series with a cyclone type separator **(26);**

It would have been obvious to one having ordinary skill in the art of pumping systems at the time of the invention to provide the system taught by Sarshar with a knockout tank to further isolate the liquid and gas portions of the mixed well fluids after the separator and before reaching a compressor, as fluid is known to cause inefficient compressor operation.

Sarshar further teaches:

a liquid pump, **FIG. 3 (31) Page 4 Lines 13-14,** having an LP inlet, **FIG. 3 (42L) Page 4 Line 16,** connected to receive the LP liquid phases from the phase separator, and an outlet for providing outlet liquid at a pressure higher than that of the LP liquid phase, **the combination of a high pressure fluid and a low**

pressure fluid is known to produce a mixed fluid at a higher pressure than the low pressure fluid;

Sarshar does not teach that the fluid pump is a positive displacement mechanical pump, but Cholet does.

Cholet teaches:

limitations from claims 1 and 23, a positive displacement mechanical pump for pumping fluid removed from a production well, **C. 2 Lines 5-15, a rotary pump is a positive displacement pump**;

It would have been obvious to one having ordinary skill in the art of well pumping systems at the time of the invention pump an oil fluid with any convenient and available pump, including a rotary pump as taught by Cholet, in order to pump fluid that was removed from a production well containing at least a portion of gas, as in the system taught by Sarshar.

Sarshar, Wiltshire, Palmour and Cholet disclose and teach of the pump in claims 1 and 23.

Sarshar further teaches:

limitations from claims 2, 24 and 25, wherein the compressor **(from Wiltshire)** provides a supply of lift gas or export gas, **Page 4 Lines 12-13 and Lines 19-21, lift gas is a common motive fluid for jet pumps in down hole wells**;

limitations from claims 18 and 38, a mixing device, **FIG. 3 (43) Page 4 Lines 18 and 24,** connected to the outlets of the jet pump and the liquid pump, for combining the outlet gas and the outlet liquid and providing a combined multiphase outlet fluid at a pressure higher than that of the LP multiphase fluid, **Page 4 Lines 11-27**;

limitations from claims 19 and 39, wherein the mixing device is a commingler, **Page 4 Lines 17-24**;

limitations from claims 21 and 41, wherein the multiphase fluid is a petroleum gas/oil mixture**, Page 1 Lines 9-11**;

limitations from claims 5, 6, 9, 20, 22, 26, 27, 29, 40 and 42, wherein the HP gas pressure, jet pump outlet pressure and oil/gas mixture ratio are within certain limits;

Sarshar discloses the pumping system of claims 1 and 10 except for the ranges of the values claimed for the system characteristics listed above. It would have been obvious to one having ordinary skill in the art of pumping systems (particularly jet pumps) at the time of the invention to choose a value to best suit the system and its efficiency, including one from within these ranges, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller, 105 USPQ 233.*

limitations from claims 43 and 44, a system and process for pumping multiphase fluids, comprising:

a cyclone type, **Page 2 Lines 23-33 teach a separator that functions as a cyclone separator,** phase separator, **FIG. 3 (41, 42) Page 4 Line 12,** that is connected to receive an LP multiphase fluid, and is constructed and arranged to separate an LP gas phase and a LP liquid phase from the LP multiphase fluid, **Page 4 Lines 11-27**;

a gas-gas jet pump, **FIG. 3 (32) Page 4 Lines 19-20,** having an LP inlet connected to receive the LP gas phase, **FIG. 3 (42G) Page 4 Lines 21-22,** an HP inlet connected to receive a HP gas supply, **FIG. 3 (41G) Page 4 Lines 20-21,** and an outlet for providing outlet gas, **FIG. 3 (43G) Page 4 Line 24,** at a pressure higher than that of the LP gas phase; and a commingler **(43);**

Sarshar does not teach a compressor providing a HP source; instead Sarshar teaches using pressure directly from a well.

However, Wiltshire does teach that compressors can be used to provide motive fluid pressure in jet pumps.

Wiltshire teaches:

limitations from claims 43 and 44, a compressor, **FIG. 2 (16),** providing a sustainable HP gas source to a jet pump, **FIG. 2 (17) Page 2 Lines 14-21**;

Examiner acknowledges that the jet pump taught by Wiltshire is a liquid-gas jet pump, however it would have been obvious to one of ordinary skill in the art of pumps at the time of the invention that the method of using a compressor to provide a HP gas source in a jet pump, as taught by Wiltshire, could be combined with a gas-gas jet pump (as is taught in Sarshar) as well, to provide a reliable motive force.

wherein the compressor is arranged to provide a sustainable gas source having a pressure in the range 50-150 bar;

Sarshar discloses the pumping system of claim 1 except for the range of range of pressure of the sustainable gas source. It would have been obvious to one having ordinary skill in the art of pumping systems (particularly jet pumps and wells) at the time of the invention to choose a value of pressure provided by the compressor that is sufficient to operate

the jet pump at a desired power/flow, including one from within this range, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. ***In re Aller, 105 USPQ 233.***

Neither Sarshar nor Wiltshire teaches using a high pressure steam as a motive fluid, but Woerheide does.

Woerheide teaches:

limitations from claim 1 and 23, wherein a jet pump used in a well system is supplied with high pressure steam from a generator in order to move a well vapor **(C. 2 Lines 3-7 and 52-53; C. 3 Lines 20-40 and 61-67);**

It would have been obvious to one having ordinary skill in the art of pumping systems (particularly jet pumps and wells) at the time of the invention to use a readily available motive fluid source such as steam as taught by Woerheide to power the jet pump of Sarshar, as steam is a reliable and available source in well operations.

Sarshar does not teach a knockout tank, but Palmour does.

Palmour teaches:

limitations from claims 43 and 44, a knockout tank, **(28),** for removing a liquid from a gas, having a liquid outlet connected to deliver removed liquid to a liquid pump, **(80);** the knock out tank being arranged in series with a cyclone type separator **(26);**

wherein the fluid outputs **(72, 82, 54)** of the separator and knockout tank combine at a commingler **(line 42; it is also noted that Sarshar teaches the use of a commingler (43) to combine to separated flows in a pipeline);**

It would have been obvious to one having ordinary skill in the art of pumping systems at the time of the invention to provide the system taught by Sarshar with a knockout tank to further isolate the liquid and gas portions of the mixed well fluids after the separator and before reaching a compressor, as fluid is known to cause inefficient compressor operation.

Sarshar further teaches:

a liquid pump, **FIG. 3 (31) Page 4 Lines 13-14,** having an LP inlet, **FIG. 3 (42L) Page 4 Line 16,** connected to receive the LP liquid phases from the phase separator, and an outlet for providing outlet liquid at a pressure higher than that of the LP liquid phase, **the combination of a high pressure fluid and a low pressure fluid is known to produce a mixed fluid at a higher pressure than the low pressure fluid;**

Sarshar does not teach that the fluid pump is a positive displacement mechanical pump, but Cholet does.

Cholet teaches:

limitations from claims 43 and 44, a positive displacement mechanical pump for pumping fluid removed from a production well, **C. 2 Lines 5-15, a rotary pump is a positive displacement pump;**

It would have been obvious to one having ordinary skill in the art of well pumping systems at the time of the invention pump an oil fluid with any convenient and available pump, including a rotary pump as taught by Cholet, in order to pump fluid that was removed from a production well containing at least a portion of gas, as in the system taught by Sarshar.

Response to Arguments

Applicant's arguments filed 02/23/2010 have been fully considered but they are not persuasive.

The Woerheide reference has been used in the above rejection to teach that the use of high pressure steam generated separately from well bore production is a known motive fluid for jet pumps in well systems. One of ordinary skill in the art would find that

a motive fluid produced from a generator would be more consistent and controllable than natural sources.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTOPHER BOBISH whose telephone number is (571)270-5289. The examiner can normally be reached on Monday through Thursday, 7:30 - 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on (571)272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Christopher Bobish/
Examiner, Art Unit 3746

/Devon C Kramer/
Supervisory Patent Examiner, Art Unit 3746

/C. B./
Examiner, Art Unit 3746